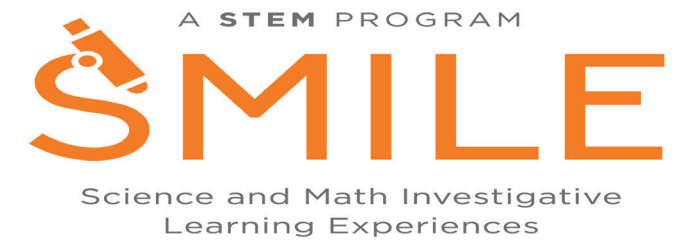


The SMILE Program  
University of Rhode Island  
90 Lower College Road, Roosevelt Rm 1  
Kingston RI 02881

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25\* Years of service

## Middle School Engineering Challenge

## Elementary Outdoor Science Adventure



On March 29th, SMILE middle school students from around the state gathered at the University of Rhode Island's Kingston campus for the 2019 SMILE Middle School Engineering Challenge Weekend.

This year at Middle School Challenge Weekend SMILE students designed and tested wind turbine hubs that were then connected to mini wind turbine towers. Students hailed from 6 school districts across the state- Central Falls, Newport, South Kingstown, West Warwick, Westerly, and Woonsocket. Nearly 140 students formed 24 teams. The goal was to generate the most power possible while manipulating a set of 7 blade design variables.

Continued on page 6...



On April 5th, SMILE 5th grade students from around the state arrived at URI W. Alton Jones environmental campus for the 2019 Elementary Outdoor Science Adventure!

During the early morning of April 5th, the SMILE Program's 5th grade students stepped off a school bus and onto the beautiful and peaceful grounds of URI's Alton Jones Campus. They were welcomed by 16 URI mentors who spent the spring semester preparing themselves, activities and hands-on lessons to educate the SMILE students about the ecology of the Alton Jones Campus during their 2 day, 1-night stay.

Continued on page 2...

## Donate

The SMILE Program relies on the generous support of our donors. Invest in the future of RI students by supporting SMILE.

Please make checks payable to  
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90 Lower College Rd, Roosevelt Rm 1  
Kingston, RI 02881

\*The SMILE Program is a 501(c)3  
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## Visit Us Online

[www.uri.edu/smile](http://www.uri.edu/smile)

## Join Us on Facebook



## Calendar

Weekly SMILE Club Meetings  
Scientific and Career Exploration Field Trips

Family Science Nights  
November-December 2018

Special Annual Events  
High School  
Engineering Challenge Weekend  
April 26-27, 2019  
URI Kingston Campus

Middle School  
Engineering Challenge Weekend  
March 29-30, 2019  
URI Kingston Campus

Elementary School  
5th Grade Outdoor Science Adventure  
April 5-7, 2019  
URI Alton Jones Campus  
4th Grade Ecology Event  
April 11, 2019  
URI Kingston Campus

## Teachers' Professional Development Workshops

August 22-23, 2018	Dec 3, 2018	May 21, 2019
University of Rhode Island Math and Science Curriculum Planning for the year	University of Rhode Island Math and Science Curriculum Special Events Planning	University of Rhode Island Program Evaluations

Printing donated by **Schneider Electric**



All the world is a laboratory to the inquiring mind. -Martin H. Fischer



The SMILE students and URI mentors quickly bonded on Friday during their two field studies, recreation time, dinner, campfire, and cabin talks before it was LIGHTS OUT for a restful sleep to prepare them for a full day of field studies, reflections, games, and meals on Saturday. The students and mentors spent the weekend together learning about the plant and animal life throughout the campus. The URI mentors not only captivated the SMILE students with their hands-on lessons at four different sites, they also led the students in fun campfire songs and shared their challenges and successes throughout their academic careers. The EOSA weekend was a rewarding, heartwarming and educational experience for all in attendance.

The SMILE students rotated through four different field studies at four different locations on campus.



**Bubbling Brook Pond:** At the Bubbling Brook Pond, URI mentors taught the students about the different trophic levels through three exploration activities around the pond. They were put to the test by going deep into the mud, searching for organisms, such as worms, grubs, and other invertebrates and learning about their important features that help them survive in their environment. Students studied the pond depth and measured its turbidity and how it impacts the life found within the pond. Students also tested water quality and measured the levels of nitrogen and how it helps plant life within the pond. By the end of their learning experience, the students understood how organisms of each trophic level play a vital role in sustaining balance within the pond ecosystem.

“My favorite part about the EOSA is learning through interacting with nature and animals”

-SMILE Student



We would like to thank the following list of funders that have allowed SMILE to grow and continue to provide high quality after-school STEM programming to Rhode Island students:

Amgen Foundation	Rhode Island Foundation
Amgen Biotech Experience	Schneider Electric
Amica	Steere Engineering
Anonymous Donors	Toray Plastics, America, Inc.
Arnold Lumber	University of Rhode Island
The Champlin Foundations	Verizon Foundation
Connecting For Children and Families	YMCA of Greater Providence
Constellation, an Exelon company	Central Falls School Department
Dominion	Newport School Department
Graphic Expressions	South Kingstown School Department
Holiday Inn South Kingstown	Walmart Foundation
June Rockwell Levy Foundation	Westerly School Department
Lloyd G. Balfour Foundation, Bank of America, N.A Trustee	West Warwick School Department
Nordson Corporation Foundation	Woonsocket School Department
NOAA B-Wet Program	
Pfizer	
Ramsey McCluskey Family Foundation	

We would also like to thank our Individual Supporters, who are vital in helping The SMILE Program to continue its mission

The SMILE Program		
<b>SMILE STAFF</b> Carol Englander Director Claudia Hoddersen Curriculum Specialist Clair Stengall-Murphy Specialist JoAnn Basel Curriculum Specialist Gina Haberlin Curriculum Specialist Kristy Armstrong Bookkeeper Kaitlyn Czap Development Coordinator	<b>URI RESOURCE FACULTY</b> Kathy Collins, Vice President for Student Affairs <b>ENGINEERING</b> Faye Boudreaux-Bartels Christopher Hunter Mercedes Rivero-Hudec Manbir Sodhi Jose Amador CELS-NRS <b>BOARD OF DIRECTORS</b> Fred Frostic, President John Peterson, Vice President Ruth Jarrett, Secretary Malcolm Spaulding, Board Member Glenda Kirby, Board Member Steve White, Board Member Augusto Gomes, Board Member Fran Alexacos, Board Member Cathy Valentino, Board Member	<b>COLLEGE OF ENVIRONMENT &amp; LIFE SCIENCES</b> Larry Englander CELS, Plant Sciences Evan Preisser CELS-BIO <b>MATHEMATICS</b> Orlando Merino

The Science and Math Investigative Learning Experiences (SMILE) Program is an enrichment program for educationally disadvantaged students in grades 4-12 in six districts in Rhode Island. SMILE's goal is to provide group activities for these students in science, technology, engineering and math. Generous gifts by participating donors make this program possible. The SMILE newsletter is published three times a year. We encourage your comments and ideas. Please share this newsletter with others who might be interested in SMILE.



# Citizens Elementary, Woonsocket

Melanie Clark-Medyesey, James Bucci  
By Citizens SMILE Club



The SMILE club is important to me because every week we learn about something new. Sometimes the things we learn about can help us in everyday life. -Olivia

SMILE is a science program and I love science! We do so many activities. My favorite activity was when we learned about scat. We had to guess which animal went with each chocolate “scat”. -Sofia

We learned about biotic and abiotic things. An activity we do is playing the quiz game Kahoot! -Kahli

A reason why I enjoy SMILE is that you can learn about animals and learn about new things. It helps you know more about your world and things in your life. -Aaliyah

SMILE teaches me lots of things. I learned that chocolate was made from trees. -Cyarra

We get to learn all these incredible things like vernal pools, food webs and food chains. SMILE helps me work better in a group while learning STEM activities. -Evelyn

SMILE is important because it has fun activities and games. It also helps you in college, as well as learning with cooperative people. In my opinion, SMILE is the best! -Tim

“I felt like I was a real college student doing the field studies and staying in cabins!”  
`SMILE Student



**Pine Forest:** In the pine forest, URI mentors involved the students in learning not only about the massive pine trees but also students got to stop and listen to their quiet surroundings. Throughout the four lessons the SMILE students learned about forest succession, layers of the forest, pH, tree growth, species ID and more. They estimated the height of a tree using tree circumference, looked under fallen trees for worms, observed how succession had shaped the forest and its microhabitats, and got to use different equipment to measure temperature and pH. The trek through the fallen trees was peaceful and left the students with a new love for the forest.



**Vernal Pool:** At the vernal pool, students had the opportunity to learn about plants and how they are primary producers, and how they contribute to the success and life span of the vernal pool. Students learned the importance of lichens indicating good air quality. Finally, students learned the life cycle of spotted salamanders and wood frogs, and they were actually able to see the egg masses of both species. Overall, the students got a well-rounded lesson of what goes on in a vernal pool and how a vernal pool is a special body of water.



**Woods and Stream:** Deep in the woods at one of the streams, URI mentors had the students determine if the stream was healthy by calculating its flow rate and looking for macroinvertebrates that are indicators of a healthy stream. SMILE students examined the blooming skunk cabbage and learned about the special characteristics that help it to survive, including the “special smell” that it emits when stepped on! Students also learned how their leaves help the plant to perform photosynthesis.



EOSA Mentors

Letter to the 2019 EOSA URI College Mentors  
From SMILE Director, Carol Englander

This SMILE Elementary Outdoor Science Adventure was our 24th EOSA. Your enthusiasm and “can do” spirit was pervasive the entire time. Your cooperative spirit and kindness with each other carried over into the development of your field studies. You formed a cohesive mentor group with other URI students you met the first day of class. All your work developing the outdoor field studies paid off. The 5th graders enjoyed using real science equipment taking data in the environmental activities you led. The kind and caring manner you exhibited at meals, at cabin talks, along with your college connections campfire talk, was outstanding. You were positive role models who made these young scientists aware of the importance of having high expectations for themselves. We have put these 5th graders on a path to higher education through a meaningful series of hands-on environmental field studies and fun activities. You have had a positive impact on these SMILE students and on each other.

I am very proud of each of you. Thank you for making the 2019 EOSA so successful.



Woonsocket Middle School Villa Nova

Deana McCarthy, Marie Gentile  
By Allie Sithtaphone, Andreas Lopez, Kailey Ferreira

The Woonsocket Middle School SMILE clubs have been working towards our challenge weekend! We are all very excited to apply the knowledge we have learned in these past few lessons to the challenge. As of lately we have all learned things about renewable energy sources like the wind. We have focused on making our own batteries and wind turbines in order to create energy. We are all anxious to see what the challenge this year will be.

“I like SMILE because it has fun projects you can do and you can learn more about engineering.”  
-Zionna Brown

“I like SMILE because it challenges us to do things we normally wouldn’t do in school”  
-Autumn Gonzalez

“I like SMILE because we stay after school. It also helps me get away from technology for a bit and SMILE improves my teamwork skills. SMILE would also help me get scholarships for college.”  
-Baramey Sithtaphone

“My favorite project that we’ve done so far is the wind turbine. I like being in SMILE because it’s fun and we can be creative.”  
-Yenailis Brown

“I like going to SMILE because we get to learn something new and it’ll help me one day in the future.”  
-Skyla Souza



Springbrook Elementary, Westerly

Lisa Kenyon, Melisa Ferando  
By Springbrook SMILE Club



Springbrook Elementary School’s grade 4 and 5 SMILE club is having a great year! Students loved the hands-on engineering activities we did in the fall. We are all looking forward to getting outdoors as we dig into our ecology curriculum and prepare for the spring fieldtrips. In April, we will also be visiting the Roger Williams Botanical Center at the Roger Williams Park. Here are some highlights from our enthusiastic students:

“My favorite thing about SMILE club is that we can all participate. That’s my favorite part because I don’t always get to participate in school. My favorite thing we have done so far is making safe stopping robots. It was fun to build and we were done building we could see which robot got the farthest.”  
- Jayda Standeven, grade 5



“My favorite thing we have done in SMILE so far is making electrical circuits. We learned a lot about how they work by trying and rying over again. We almost quit because it was not working. Then we used foil and the problem was fixed. One by one, each electrical circuit worked. We learned a great lesson from a very simple activity.”  
- Kaizhen Lei, grade 5

“My favorite thing about SMILE club is that when we get our report cards we have to get good grades and be good to our teachers and I like being pushed a little bit to help me try to get good grades.”  
- Rose Sposato, grade 4



### Curtis Corner Middle School, South Kingstown

Valerie Light, Brenda Dillmann  
By Curtis Corner SMILE Club



This year we have 27 members of SMILE who are ecstatic to learn and have fun. We flipped over the ship the chip challenge. Literally, to test we would continuously flip the box to see if the chip broke. They did not!

Around the holidays, we designed and constructed circuit board cards. Some found this very challenging, while others found it fun. Family science night was a stunning success. We had projects ranging from mind riddles, to teamwork tests, to see how well you can cooperate with your peers.

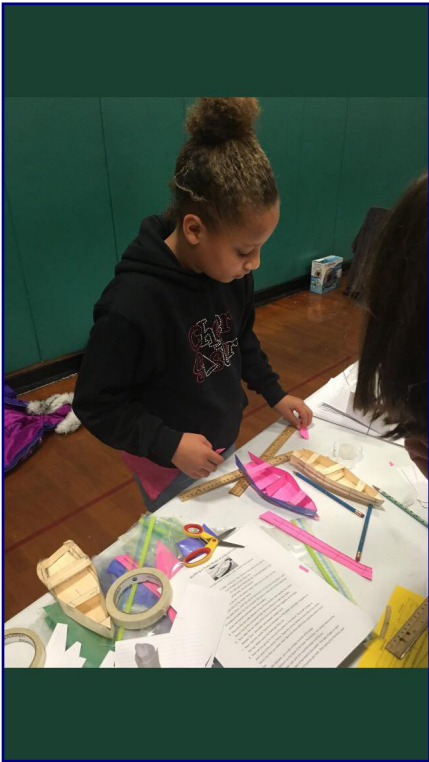
Lately we have been working on wind turbines that create electricity, in order to prepare

for the SMILE challenge weekend. Learning about blade angles, shapes and gears ratios, is preparing us for the upcoming SMILE challenge weekend. We are enthusiastic to put our knowledge to the test.



### Peacedale Elementary, South Kingstown

Christine Pierce, Eileen Daly  
By Peacedale SMILE Club



In SMILE, we learn to work together. We make new friends and we learn about many different branches of science. We worked in teams to engineer stable towers, domes, and safe stopping robots. At Family Science Night we got to be the experts and showed our friends and families how to design and build the things we had worked on in our club meetings. Building the robots was one of our favorite activities. We are studying ecology right now to get ready for field trips to URI and Alton Jones. Everyone is really excited about these trips because we will get to use the experiences we have had in our club in the real world. We have learned how to identify footprints, how to figure out how old a tree is by looking at tree cookies, and many things about animal habitats and ecosystems. Science is so many different subjects. To be a scientist you have to be a creative thinker and make predictions and not be afraid to get things wrong while you are trying to find answers to hard questions. Being in SMILE is quality time and we have to work hard sometimes to get along and get things done. SMILE is a fun and social club where you make new friends and learn new things. This is why we love SMILE.



### Westerly High School

Sharon Ficara, Susan Wood  
By Westerly High School SMILE Club

Westerly High School SMILE club members are anxiously looking forward the HS Engineering Challenge Weekend. The activities we have been working on in anticipation of this event have been a lot of fun. The SMILE Club is currently studying the science of submersibles. We are learning about density, buoyancy, ballast and how they can affect how a submersible will act in the water. Additionally we have been working with electrical components. Our HS club hosted our annual Family Science Night and had a great turnout. We plan on sharing the activities we did at the Science Night with the entire district at the STEM Expo in May.

Some other activities we have been able to do this year have been to participate in other technology related field trips. We attended the URI Computer Science Summit in December. We participated in an Engineering clinic at Seacon Phoenix.



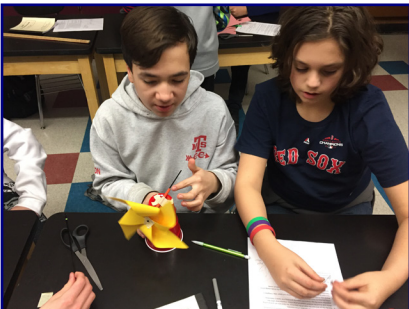
### Thompson Middle School, Newport

Candace Lewia, Elizabeth Gibbs  
By Thompson School SMILE Club

It has been another great year so far in SMILE. We made packages to ship a single Pringle's chip, put them in the mail and got them back unbroken! We learned about circuitry and engineering when we created cards that lit up and motorized creations that moved. We used chromatography to see how black ink is really made of many different colors. In addition, we sent our air skimmers flying down the hall.

Family Science Night is always a highlight of our year, when we get to show our families how much we know and have them try our hands-on activities. In 2019, we've been learning about wind energy and all the things that made a wind turbine work, to help us get ready for the Middle School Challenge Weekend.

Finally, we have had a unique opportunity in March to work with the IYRS School of Technology and Trades to create centerpieces for a gala for the Women's Fund of Rhode Island. We get to use the RI Mobile Maker Lab to create sculptures representing Science, Technology, Engineering, Art and Math.







SMILE students from around the state work in mixed school teams to plan out the design of their turbines

Students arrived early Friday morning at the URI Memorial Union Ballroom, were greeted by URI SMILE staff and organized into teams. SMILE Director, Carol Englander welcomed the students to URI. We were lucky to have Stacy Tingley from ORSTED as a guest speaker. ORSTED, a Holland-based company, built the Block Island Wind Farm in 2015 off of the Rhode Island coast. Stacy outlined how the wind turbine parts were fabricated and installed using really interesting and impressive equipment. Then Middle School Program Coordinator, Claire Steggall-Murphy outlined the engineering challenge to the students. Before materials were distributed the students had to brainstorm about turbine blade design and learn about the variables they would be investigating. Once jobs were assigned and safety rules understood, students could collect their boxes of materials and get to work. While some team members began working through the testing of blade materials and design variables, other team members assembled the turbine tower and nacelle with the generator. Throughout the day the teams worked through the testing process to hone in on the best combination of the blade design variables- blade material, angle, length, width, distance from hub center, shape, and number of blades.

After dinner the testing continued and final design decisions were made in the Ram's Den food court. Data collected included the maximum voltage generated as well as all design criteria.

This year SMILE was fortunate enough to host a few dozen URI student mentors thanks to the help of Robin Hall and Sydney Robinson from the URI College of Engineering. Robin and Sydney also coordinated tours of the Makerspace and AI Laboratory in the URI Library. On Saturday, Robin ran a fun competition in the atrium of Beupre Chemistry and Forensic Science Center. Students formed small teams to see who could achieve the greatest air time for a clothes pin and parachute dropped from the second story of the atrium. The 1 hour activity got the middle school students moving and kept them engaged in a fun way with the engineering design process.

The weekend wrapped up with a results discussion led by Claire Steggall-Murphy. During the results review the students learned about statistical analysis and sources of error when reviewing a set of data.

The Challenge Weekend is a fun way to visit a college campus and provides an opportunity to get young people interested in science, math and engineering fields of study and careers. SMILE students learned a lot about student life on a college campus, toured the new science buildings: chemistry & forensic science, pharmacy and CBLS (College of Biology and Life Sciences), ate meals in a dining hall, and enjoyed recreation at Tootell Aquatic Center.

Our SMILE Middle School students have put themselves on a path to college and have high expectations for themselves. A huge "THANK YOU" to all our teachers, URI faculty and student mentors, SMILE staff, and sponsors who helped to make this challenge a wonderful experience.

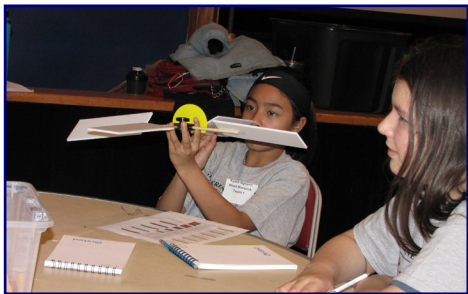


Stacy Tingley, Guest Speaker from Orsted.

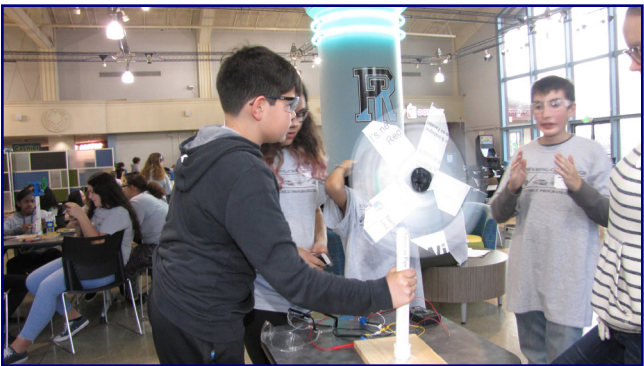
*"I really enjoyed SMILE this year, it is really interactive and fun to work with others"*  
-SMILE Student



*"At SMILE I have the opportunity to make new friends and learn about college opportunities."*  
-SMILE Student



And the Testing Begins!



SMILE students visit URI's Artificial Intelligence Lab

